

CALFED Water Use Efficiency Program PSP Application

A. COVER SHEET

1. **Specify:** ☒ Agricultural Project ___ Individual Application
 ___ Urban Project ___ Joint Application
2. **Proposal title:** On-Farm Ditch and Cast-in-Place System Replacement
3. **Principal applicant:** Modesto Irrigation District
4. **Contact:** Joseph Lima
5. **Mailing address:** 1231 Eleventh St., Modesto, CA 95352
6. **Telephone:** 209-526-7562
7. **Fax:** 209-526-7352
8. **E-mail:** joel@mid.org
9. **Funds requested:** Two Hundred Seventy Four Thousand dollars (\$274,000)
10. **Application cost share funds pledged:** Two Hundred Seventy Four Thousand dollars (\$274,000)
11. **Duration:** June1, 2001 to March 31, 2003
12. **State Assembly and Senate districts and Congressional district where the project is to be conducted:** 25th
Assembly District represented by Assemblyman David Cogdill, 26th Assembly District represented by
Assemblyman Dennis Cardoza, and 12th Senate District represented by Senator Dick Montieth.
13. **Location and geographic boundaries of the project:** Modesto Irrigation District service area covers 102,000
acres between the Stanislaus and Tuolumne Rivers east of the San Joaquin River. This area represents a portion
of CALFED Sub-Region 11.
14. Name and signature of official representing applicant. By signing below, the applicant declares the following:
☒ the truthfulness of all representations in the proposal;
☒ the individual signing the form is authorized to submit the application on behalf of the applicant;
☒ the applicant will comply with contract terms and conditions identified in the Section 11 of this PSP.

Allen Short, Modesto Irrigation District General Manager

(Printed Name of the Applicant)

(Signature of Applicant)

(Date)

B. SCOPE OF WORK

Relevance and Importance

1. **Abstract:** This project will replace on-farm irrigation ditches and deteriorating concrete cast-in-place pipelines with plastic pipe to improve water delivery flexibility and reliability within the Modesto Irrigation District service area. With the greater reliability and flexibility of the plastic pipelines, growers will have the capability to convert the on-farm irrigation system from the less efficient flood irrigation to more efficient pressurized drip and micro sprinklers systems. The on-farm water delivery reliability and flexibility required for micro irrigation systems does not exist with ditches and cast-in-place concrete pipelines.

This project will partially address CALFED Quantifiable Objective 113 by providing long-term diversion flexibility to increase the water supply for beneficial uses. This project will also meet some requirements of the Efficient Water Management Practices (EWMPs) by Agricultural Water Suppliers listed in the Memorandum of Understanding (MOU) of the Agricultural Water Management Council (Council). Specifically this project will meet some of the voluntary requirements of the EWMPs (List B, Practices 3, 6, and 8; List C, Practice 1). Those requirements include: facilitate the finance of capital improvements for on-farm irrigation systems, increase flexibility in water ordering by, and delivery to, the water users within operational limits, optimize conjunctive use of surface and groundwater, and water measurement and water use report.

2. **Statement of Critical Local, Regional, Bay-Delta, and State Water Issues:** This project will make it possible to fill a critical local need for greater reliability and flexibility of agricultural water delivery to growers who wish to convert. The result of increased water ordering reliability and flexibility will enable growers to irrigate more efficiently since the grower will have greater control of the water delivery flow, rate, and duration needed for pressurized systems. Control of water flow, rate, and duration is needed for the efficient operation of micro pressure irrigation systems. With an upgraded system, a local benefit will accrue including reduced maintenance of the on-farm water delivery system.

The proposed project is consistent with and supports the voluntary water supplier actions listed in the Modesto Irrigation District (MID) agricultural Water Management Plan (Plan). The Plan identifies the replacement of ditches and concrete cast-in-place pipelines as an Efficient Water Management Practice that will increase water delivery reliability and flexibility to the growers. The MID Plan was the first such plan endorsed by the Council on January 17, 2001. The Plan is on file with California Department of Water Resources and the Council.

3. **Nature, Scope, and Objectives of the Project:**

Nature of the project - This project will replace on-farm canal ditches and aging cast-in-place pipelines with more reliable plastic pipelines. The existing on-farm water supply system does not have the reliability and flexibility for the needs of pressure micro irrigation systems. The on-farm water supply system was originally designed for large water flows to level basin flood irrigation on rotation intervals of several days and weeks. As originally

designed, the on-farm water supply system is not compatible with the low flow, arranged demand water delivery associated with micro irrigation systems (micro sprinklers and drip). Additionally, the current system requires excessive labor and maintenance costs to operate. Consequently, the existing on-farm water supply system cannot be used effectively by growers who wish to convert to the more modern and potentially more efficient micro irrigation systems.

Scope of the project - This project will enhance the current MID program to replace on-farm ditches and concrete cast-in-place pipelines with plastic pipelines. The current program, as adopted by the MID Board of Directors for budget years 2001/2002, contributes up to 50% of the eligible growers' cost to replace ditches and cast-in-place pipelines. Even with MID's contribution to the project costs, many growers will not take advantage of the program since they cannot justify their share of the cost. Consequently, the irrigation system conversion does not occur or the grower makes the conversion but relies on groundwater rather than surface water for 100% of the crop water needs. This project funding request will augment the current MID 2001-2002 budget of \$274,000 for the up to 50% cost share with the growers. If the Cal/Fed funding is made available, MID will increase the contribution to up to 100% of the eligible project costs to upgrade the on-farm water supply system.

Objective of the project – This project is designed to replace and upgrade on-farm water supply system for greater reliability and flexibility. With greater reliability and flexibility, growers will have the appropriate water supply needed to convert from flood to the potentially more efficient micro irrigation systems.

4. **Methods, procedures and facilities:** The MID service area is within CALFED's Sub-Region 11. However, MID diverts irrigation and M&I water from the Tuolumne River. Most of the operational spill or return flows from the canals and land within the service area returns to the Tuolumne River. Only a small amount of operational spills and some storm water flows, are diverted to the lower part of the Stanislaus River which is also within CALFED's Sub-Region 11.

As discussed above, this project is now being partially implemented by MID. MID has budgeted \$274,000 dollars for budget cycle 2001/2002 for contribution to the growers cost of replacing and upgrading the water delivery system and associated facilities. However, with MID contribution of up-to 50% of the cost for replacement and upgrade of on-farm water supply system, grower participation has been slower than expected. Growers may still opt to keep the old system and not convert or to convert the irrigation system but forego MID surface water in favor of groundwater. Neither of these options is to MID's benefit. If growers opt to take no action, the land will continue to be irrigated with the less efficient flood irrigation system. If growers convert to potentially more efficient irrigation systems, but opt for groundwater for the water supply, the flexibility for conjunctive use of surface and groundwater during wet and dry years is decreased. With the CALFED funding to augment the MID budget, the contribution to upgrade and replace the water delivery system would be increased from up-to 50% to up-to 100% of the cost. It is anticipated that with the larger contribution, grower participation will increase.

5. **Schedule:** The project will be implemented during the MID budget period starting January 2001 and terminating on December 2002. However, funding contributions would continue until the end on March 31, 2003. Projects approved by December 31, 2002 are subject to funding and will be given until March 31, 2003 for completion and invoicing. Projects submitted may be designed by the grower, a consultant, or by MID but in every case, the project is reviewed and approved by MID's engineering department. A detailed cost estimate is required for every project prior to final approval. The project construction is monitored and completion approved by MID prior final funding payments. Quarterly and annual fiscal and programmatic reports will made available by required funding agreement.
6. **Monitoring and assessment:** The project success will be based on the grower participation. If growers take advantage of the funding, the on-farm water delivery system will have the reliability and flexibility required for on-demand water deliveries. With this capability, the grower can request and use MID surface water for pressurized micro irrigation systems.

C. Outreach, Community Involvement, and Information Transfer:

1. The project is available to all growers within the MID irrigation service area. The current project has been advertised through the local media and through newsletters to all growers and customers. Changes to the current application process and the contribution will be advertised in the local media and newsletters. All irrigation growers and customers regardless of community location, affiliation, or tribal entity are treated equally based on the application and project request.
2. The project design and construction can be performed by MID, the grower, or by a local construction firm. In all cases, training and employment opportunities will be available to the employees of the respective organizations. Local material suppliers will also benefit.
3. If MID is successful in obtaining the additional funding, the information and new guidelines for grower participation will advertised in the local newspapers and through newsletter direct mailing to all growers/customers.
4. Please see attached article in the June 1999 edition of the MID Irrigation Line newsletter advertising the cost-sharing program. A detailed cost estimate is required for every grower project prior to final MID approval.

D. Qualifications of the Applicants, Cooperators, and Establishment of Partnerships :

1. The applicant for the funding is the Modesto Irrigation District. Please see attached Modesto Irrigation District Fingertip Facts for more information.
2. The cooperators for this project are the MID water users and growers who will be improving the on-farm water delivery facilities. The growers or MID will contract to perform the improvements. However, every project will be approved, monitored and inspected by MID before any funds are disbursed.

3. There are not partnerships other than those between MID and the growers and/or a third party contractor to perform the improvements.

E. Costs and Benefits:

1. As discussed earlier in this application, MID has an approved budget of \$274,000 for this project for fiscal years 2001/2002. The district will contribute up-to 50% of the cost of on-farm pipelines and associated facilities including canal sidegates, irrigation retention ponds, prescreen facilities, pipelines flow meters and pump box structures. The matching funds will be used to increase the contribution to the on-farm projects described above from up-to 50% to up-to 100% of the cost of those projects.
2. The MID and CALFED contribution to the project is directed towards labor, materials, and equipment costs. If the work is performed by a contractor, the contribution is for the approved invoice cost of the project. No contributions are made available for consultants, travel, meals, maintenance or other indirect costs.
3. It is not possible to directly quantify the benefits of this project. However, with a basic understanding of the principles of crop water use and the application of water to crops, one realizes that this project will have direct and indirect benefits to the MID and growers within the MID service area.

4. Assessment of costs and benefits;

The costs of the project is based on the number of applications received from growers for financial assistance for piping ditches and deteriorated cast-in-place pipelines. The replacement of these systems insures the growers will have a reliable and flexible water supply - a requirement for the conversion of flood to micro pressure irrigation systems. Since CALFED WUE has not developed the Quantifiable Objectives (QO's) on the Tuolumne River, a true cost benefit analysis are difficult to be quantified and assessed. The following are possible benefits to MID and growers:

MID direct and indirect benefits include :

- a) Facilitate growers continued use of MID surface water
- b) Maintain a balance between surface and groundwater usage within the MID service area
- c) Continue the beneficial uses of Tuolumne River water
- d) Avoid the need to force growers to use surface water to avoid basin overdraft
- e) Maintain the capability to use surface and groundwater conjunctively
- f) Accomplish Efficient Water Management Practices as described in the MID Agricultural Water Management Plan

Grower direct and indirect benefits:

- a) Enhance the reliability and flexibility of the water supply
- b) Ability to order water in an arranged demand basis

- c) Access to the more reliable and less expensive water supply
- d) Continued access to higher quality water supply
- e) Reduce the cost to convert from flood to micro irrigation systems
- f) Minimize conflict with neighboring growers for the water supply

This project is expected to increase the reliability and flexibility of the on-farm irrigation water delivery. Although the CALFED QO's for the Tuolumne River have not been established and the benefits cannot be quantified, irrigation experts recognize that conversions from flood to micro pressure irrigation systems generally simplify the ability to apply water to crops. It is understood that crop water needs do not change as the result of the type of irrigation system used. However, the ability to manage the application of water to the crop is very dependent on the type of irrigation system used. For example, flood irrigation can be as efficient as any other types of irrigation but the management, oversight, and effort needed to achieve a high water use efficiency is very demanding. Therefore, pressure micro irrigation systems are usually less demanding and have a higher water application efficiency.

With reliable and flexible on-farm water supply the grower has the ability to optimize the water flow rate and duration - both of which are key factors in decreasing on-farm water losses. Decreased on-farm water losses can potentially reduce river diversions and improve water quality through reductions in surface runoff and percolation to groundwater.

REQUEST

This proposal is requesting a CALFED Water Use Efficiency grant in the amount of two hundred seventy four thousand dollars (\$274,000) to share in the cost of replacing on-farm ditches and old cast-in-place concrete pipelines. Currently MID has budgeted \$274,000 for fiscal year 2001/2002 for this project. The CALFED grant will increase on-farm contribution to the grower from the current up-to 50% to up-to 100% of each project's total cost. The contribution to the project cost from MID and CALFED will be in equal proportions. The contribution to the projects will continue until the MID and CALFED funding is exhausted or until March 31, 2003. Any funding left at the end of the agreed period will be returned to respective organizations or continue to be contributed to the projects with appropriate agreement extension amendments.

MODESTO IRRIGATION DISTRICT FINGERTIP FACTS

The Modesto Irrigation District (MID), located in California's Central Valley, provides electric, irrigation and domestic water service to the greater Modesto area. As a publicly owned utility, with benefits including community ownership, local control and operation on a not-for-profit basis, MID is committed to providing reliable services at the lowest cost possible.

OUR MISSION

To deliver superior value to our irrigation, electric and domestic water customers through teamwork, technology and innovation.

OUR VISION

MID will be the preferred electric and water utility for existing and potential customers by exceeding their expectations.

KEY DATES

- Established, July 1887
- Irrigation water in the canals, 1904
- Electric service, 1923
- Waterford Irrigation District merger, 1978
- Modesto Regional Water Treatment Plant, 1994

BOARD OF DIRECTORS

Division 1	Cecil Hensley
Division 2	Charles Billington (Board Vice President)
Division 3	Tom Van Groningen (Board President)
Division 4	Paul Warda
Division 5	John Kidd

Board Meetings

The regularly scheduled Board meeting is held at 9 a.m. on the second Tuesday of each month at the Modesto Irrigation District, 1231 Eleventh Street, Modesto.

Additional meetings are scheduled on other Tuesdays.

Contact the Board Secretary at 526-7360 for information on dates and agendas.

STAFF

General Manager - Allen Short
AGM Customer Service - Ron Montwid
AGM Electric Resources - Roger VanHoy
AGM Finance/General Services - Ken McKinney
AGM Human Resources - John Gronholt
AGM Information Technology - David Klein
AGM Planning & Marketing - Chris Mayer
AGM Transmission & Distribution - Tom Kimball
AGM Water Operations - Walt Ward

Number of employees: 376

ELECTRIC

Electric Accounts	Number	% of Sales in kWh
Residential	80,326	33%
Commercial/industrial	9,827	63%
Other	<u>5,077</u>	4%
Total	95,230	

Electric service area:	160 square miles
Peak demand for 2000	June 15 564.4 megawatts
Peak demand for 1999:	July 12 567 megawatts
2000 Consumption:	2,284,646,778 kilowatthours
200 Electric revenue:	\$144,722,257
2000 Average monthly residential kWh use	750 kilowatthours

Rate comparison in cents per kWh:

	US	CALIF	MID
Total System	6.7	9.0	6.3
Residential	8.3	10.5	7.7
Commercial	7.4	9.7	6.9
Industrial	4.5	6.3	4.4

*based upon most current data available

SYSTEM ENERGY REQUIREMENTS - 2000

Total System Requirements	2,284,646,778 kWh
<u>Total MID Generation</u>	20%
Don Pedro (hydro)	8%
Woodland Generation Station	10%
McClure Generation Station	2%
<u>Total Purchased Energy</u>	80%
City & County of San Francisco (hydro)	27%
MSR - San Juan (coal)	18%
Various fuels:	
- MSR - Bonneville Power Administration	11%
- Arizona Public Service	2%
- Enron	2%
- Western Area Power Administration	2%
- Short term firm from various generators	18%

MSR, a partnership of MID, Santa Clara and Redding in which MID is a 50% partner, owns a 28% share of San Juan Generation Station (New Mexico) Unit 4.

MID Main Phone Number: 209-526-7373

Street Address: 1231-11th St., Modesto, CA 95354

Mailing Address: P.O. Box 4060, Modesto, CA 95352

Energy Management

Contact the Modesto Irrigation District Energy Management Department, 526-7458, for information on services and incentive programs.

ELECTRIC FACILITIES

Don Pedro Powerhouse

Dedicated: 1971
 Purpose: Hydropower from water stored in Don Pedro Reservoir
 Output: Three turbines, 55 MW each
 one turbine, 34 MW
 MID owns 31.54% or 63 MW.

Woodland Generation Station

Completed: 1993
 Purpose: Flexible year-round power supply
 Output: 49.4 MW

McClure Generation Station

Completed: 1980-Unit 1, 1981-Unit 2
 Purpose: Peaking power
 Peak capacity: 56 MW each

Stone Drop Mini-Hydro

Completed: 1983
 Purpose: Hydropower from main canal during irrigation season
 Output: 230 kW

New Hogan Powerhouse

Completed: 1986
 Purpose: Hydropower from water stored in New Hogan Reservoir
 Output: 3.15 MW

kWh = kilowatthours

kW = kilowatts

MW = megawatts

IRRIGATION

No. of acres in MID: 101,683
 Irrigated acres: 61,875 acres
 Irrigation accounts: 3,135 (active)
 Water delivered: 182,030 acre-feet
 (20-year average)
 Water charge: \$13.40/acre per year
 (2000 base allocation)
 Miles of canal: 208 miles (includes pipelines)
 Water sources: Tuolumne River & groundwater

RAINFALL DATA

112-year rainfall average:	12.22 inches
1999-00 rainfall:	16.57 inches
1998-99 rainfall:	10.63 inches
1997-98 rainfall:	24.60 inches
1996-97 rainfall:	13.49 inches
1995-96 rainfall:	15.30 inches
1994-95 rainfall:	20.18 inches

HISTORICAL RAINFALL AVERAGE BY MONTH:

January	2.38"	July	0.02"
February	2.07"	August	0.03"
March	1.95"	September	0.22"
April	0.95"	October	0.60"
May	0.51"	November	1.36"
June	0.10"	December	2.03"

Lowest rainfall year total 1913 - 4.30 inches

Highest rainfall year total 1983 - 26.01 inches

WEATHER DATA

MID serves as a weather station for the National Weather Service, recording rainfall statistics since 1888 -'89 and daily temperature information since 1939. Daily temperature and rainfall information may be found on the MID's web site, www.mid.org.

WATER FACILITIES

Don Pedro Reservoir

Completed: 1971
 Maximum storage: 2,030,000 acre-feet
 Dam crest: 830 ft.
 Primary purpose: Water storage

La Grange Dam

Completed: 1893
 Purpose: Diversion of water for MID/TID

Modesto Reservoir

Completed: 1911
 Maximum storage: 28,000 acre-feet
 Primary purpose: Regulation of canal flow and storage

Modesto Regional Water Treatment Plant

Completed: 1994
 Purpose: Treat surface water to supply the City of Modesto

Capacity: 30 million gallons per day
Location: 30-acre site near Modesto
Reservoir off of
Highway 132

**Produced by the MID Public Affairs Department
January 2001**